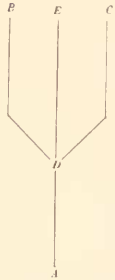
conclusively that the ants had nothing to do with the tube building. I observed the caterpillar for two weeks. The tube being added to only in the forenoon at the rate of one to two inches per day. At no time was the caterpillar visible, and it would build all around the leaves before feeding. One interesting fact seemed to me worthy of note, that when no twig was available to the nearest cluster of leaves, it would erect the tube free in a straight line towards it, though the sense of sight must be out of question. By some instinct the direction of the nearest food is known though the caterpillar is encased.

Ropronia, an anomalous Hymenopteron.

By J. Chester Bradley, Ithaca, N. Y.

In every natural scheme of classification in zoology one must expect to find intermediate forms between the groups that tend to link them together. Were all such forms that have existed still in existence, classification would be impossible. It is only by the loss of connecting links that we are able to define groups at all. This loss may occur in two ways, either by total extinction, or the link although in main preserved to us may itself have specialized at least along certain lines during the ages, so that the resulting form to-day may be very far different from what the original link was.



Let us consider a diagram in which A represents a type of animal in past ages. At D suppose a divergence in descent which by multiplication along successful lines of specialization has formed two large families, B and C. Then D represents a form which is a connecting link between these families. This may in rare cases be preserved to us at E without change, in which case the determination of its true relations becomes a comparatively simple matter. But suppose the link D has continued to specialize along unsuccessful lines so that it has not flourished as B and C have. Many characters of B, and many of C, may be retained, and others once characteristic of A, may be retained, but lost in B and C. These latter may

still be preserved in far distant groups. Other characteristics may be acquired different from either B or C. Let us suppose that the old form D and most of the line D–E has been so unsuccessful as to be entirely lost, and we find two large families, B and C, but along D–E only a single form left. Such a remnant is termed aberrant or anomalous, and it becomes a great problem to systematists to understand its peculiar relations. Such forms are found in every large group, and it is with one such that we have here to deal. The older systematists generally threw all such occurring in a group together, thus forming an unnatural heterogeneous sub-group, which is unquestionably the easiest way to treat them, although admittedly a temporary makeshift. This treatment has also been induced by the fact that such forms are apt to retain certain ancient characteristics in common which may have become lost by the groups to which they are really most nearly related. Another almost equally great, although less artificial mistake, is to include them as aberrant members of some family with which they have some character in common, or which they seem most nearly to approximate. It is far more apt to be the case that these so called aberrants, as in the case of E in the diagram, are the sole remnants of a perhaps never large or successful group, but equally distinct from B and C. To the objection that to recognize all such groups as distinct would multiply to unwieldly proportions our classification, we answer that the purpose of classification is not merely to act as a convenience for students in determining species, but to express conceptions of natural relationship.

The true relations of such anomalies as we have been discussing can only be determined, if, at all, by exhaustive study of the taxonomic value of all, or at least the most important characters of the animals forming the groups in question. Only in this way can a conclusion fairly be drawn. In the Hymenoptera it is probable that no character would shed such light as the wing venation. But so great is the complex in the Parasitica that it means years of labor before their classification can be properly worked out from that basis and correlated with other characters.

Some years ago Mr. W. Hague Harrington collected near Ottawa, Canada, a strange Hymenopteron which somewhat resembled an *Evania* with a red abdomen. This he sent to L'Abbe Provancher who described it as generically and specifically new to science under the name *Ropronia pediculata*. It was very evidently an anomaly, and Provancher in an attempt to account for it placed it in a group of Braconidæ which he called Flexitiventres. He considered it allied with the Ichneumons from its general appearance, and on account of the absence of the second recurrent nervure he placed it as a Braconid. But there is no known member of the Ichneumonoidea that has the costa and radius separate, thus forming a distinct costal cell, except Stephanidæ, and the small and peculiar family Evaniidæ, which has been generally used as a dumping ground for almost any anomalous Hymenopteron that would not fit elsewhere. Provancher felt that Braconidæ was not the right group, for a little later he changed its position to the Helorinæ in the Proctotrypidæ. This explained the presence of a costal cell. In fact the whole wing venation bears a superficial resemblance to *Helorus*. But when Dr. Ashmead seven or eight years later came to write his monograph of the Proctotrypidæ, he gave voice to the belief that it was a Braconid of the subfamily Pachylomatinæ. This conclusion was based on Provancher's description and figure of the wing. Later Dr. Ashmead described from males two new species and erected the family Heloridæ in the Proctotrypoidea, containing two subfamilies and three genera. The second subfamily, Monomachinæ, contained *Ropronia*, and also the highly anomalous South American Monomachus. That is what has been done with *Ropronia* to date, and that is where it is apt to stay for a while. But we all have a right to our own opinion, and I must confess to inability to agree with Dr. Ashmead.

My attention was first called to the insect in 1903 while collecting near Philadelphia. I was so fortunate as to take a ♀ of *garmani* Ashm. The description and figure of this appeared in the June, 1904, number of the "NEWS," the first figure of the genus ever published except Provancher's cut of the wing. Last July while collecting near Ithaca, N. Y., Dr. Mac Gilli-

vray took a ♀ of a species new to science which he has kindly permitted me to describe below.

There remains for *Ropronia* only a choice of the Ichneumonoidea or Proctotrypoidea or of a new superfamily between them. In the Aculeates and Proctotrypoidea the arrangement of the abdominal segments is such as to make the sting-like ovipositor arise from the apex of the abdomen ; in the Ichneumonoidea it arises apparently from the ventral surface anterior to the apex, caused by a modification of the ventral segments. A study of the two ♀'s of *Ropronia* proves to my satisfaction, although not beyond the limits of doubt, that the arrangement in *Ropronia* is of the Ichneumonoid type, but other characters, such as the chitinization of the ventral segments, the nature and insertion of the petiole, the head and the wing venation are not like those of Ichneumonids, excepting perhaps Evaniidæ. It is evident to me that we have an old type perhaps greatly modified, as in the hypothetical case of E in the diagram. Its true relations will continue a matter of doubt until some one works out from exhaustive and systematic study the phylogeny of the parasitic Hymenoptera. Until this be done, I shall personally consider it as representing a distinct family,—ROPRONIIDAE between Ichneumonidæ and Evaniidæ. Of one thing I am certain, that it has no close affinities with *Monomachus* in which the type of abdomen is Proctotrypoid, and the shape utterly different ; in fact there are no characters in common except a superficial similarity in wing venation, which may mean, so far as we know, perhaps much, perhaps nothing at all.

Ropronia ashmeadii n. sp.

♀ Dull black, abdomen except petiole, front femora except basal third, front tibia and base of tarsi bright red.

Head seen from above transverse quadrate, the eyes prominent, the distance behind them considerable ; occiput rather sharply angled ; mandibles black, bidentate, clypeus evenly rounded ; face in front slightly swollen mesally below the antennæ, very irregularly roughened by sharp irregular wrinkles, interspersed with shallow punctures of various sizes, in a row around the edge of the rather small eyes and on the temples and cheeks sub-regularly quadro-reticulate ; above the antennæ the wrinkles are less irregular, drawn out into long reticulations, again shallow

and irregular on the occiput, with a tendency toward radiation from the ocelli; antennæ filiform, fourteen-jointed, scape shorter than fourth joint, second joint about half the length of the third joint, latter longer than fourth.

Collar rather broad, pronotum extending back to tegulæ; humeral angels rounded; mesonotum with large roundish punctures, almost reticulate with broad meshes, a small area in the middle of the front marginal portion with numerous very fine elongate punctures; parapsidal lines distinct; pleura rather similarly sculptured to dorsum, a hollowed area above the middle legs which is nearly devoid of punctures and smoothly polished; venter minutely and shallowly punctate; rest of dorsum and propodeum punctured about as mesonotum; post-scutellum mesally raised into a distinct peg-like vertical short spine, sides of post-scutellum more or less smooth polished; propodeum very convex, overhanging the insertion of the petiole; legs short, claws without more than one or two fine bristle-like pectinations, which are perhaps mere bristles.

Wings tinged slightly smoky, a darker spot beneath the stigma, venation as normal in the genus. Abdomen polished, ovipositor not exserted. Length 6.5 mm.

One female, taken by Dr. A. D. Mac Gillivray while collecting in company with the author along the side of a wooded road, in the Larch Meadow, just south of Ithaca, New York, July 9, 1904. I am much indebted to Dr. Mac Gillivray for permitting me to study this interesting specimen.

I take pleasure in dedicating this species to Dr. Ashmead, who has already made known to science two species of the genus. The species differs from *pediculata* Prov. most distinctly in the process of the post-scutellum.

Type in the collection of Cornell University.

It is possible that this species and *californica* Ashm. with elevated post-scutellum and non-pectinated claws are generically distinct from *garmani* and *pediculata*.

Leptoglossus zonatus Dallas.—Professor R. H. Forbes has sent me a number of specimens of this species (kindly identified by Mr. Heidemann) which he collected at San Ignacio, Lower California. He also reports the insect from Santa Agneda, and concludes from his observations that it is a very dangerous pest. Its habits appear to be similar to those of the closely allied *L. phyllopus;* Prof. Forbes observed it to attack limes, oranges, watermelons, dates, and in one instance a green cotton boll. At the same time Prof. Forbes sent some insects which were said to be killing the orange trees at Hermosillo, Sonora. They are *Icerya purchasi* Maskell.—T. D. A. Cockerell.